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TITLE : TARGET, ITS PRODUCTION AND PRODUCTION OF HIGH-REFRACTIVE-INDEX FILM

ABSTRACT : PURPOSE: To produce a highly productive oxide sintered compact for a sputtering target having a low resistivity and a high content of oxygen by hot-pressing titanium dioxide powder in a nonoxidizing atmosphere and sintering the compact.

CONSTITUTION: The powder of titanium dioxide having 0.05-40 μ m grain diameter is hot-pressed at 1000-1300°C and 50-100kg/cm² in a nonoxidizing atmosphere of Ar, etc., to obtain an oxide sintered compact consisting essentially of TiO_x (1<x<2). A sputtering target having $\leq 10\Omega$ cm resistivity at room temp. and contg. ≥ 35 wt.% oxygen is formed from the sintered compact. A metal oxide other than TiO_x is incorporated, as required, into the target by <50%. The oxide of at least one kind among Cr, Ce, Zr, Y, Nb, Ta, Si, Al and B is preferably used for the metal oxide. DC sputtering is conducted by using the target to form a high-refractive-index uniform transparent film at a high rate.

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